

Each Variable Also Has a Name (an Identifier)

Rules for **identifiers** in **C**

- composed of **letters, digits, and underscores** (cannot start with a digit)
- any length
 - **use words** to make the meaning clear
 - avoid using single letters in most cases
- **case-sensitive**
 - The following are distinct identifiers: variable, Variable, VARIABLE, VaRiAbLe.
 - **Do NOT use more than one!**

Examples of Variable Declarations

Putting the pieces together, a variable declaration is

```
<data type> <identifier> = <value>;
```

Here are a few examples:

```
int anIntegerIn2sComplement = 42;
unsigned int andOneUnsigned = 100;
float IEEE_754_is_Cool = 6.023E23;
```

Variables Always Contain Bits

The initialization for a variable is optional.

So the following is acceptable:

```
<data type> <identifier>;
```

For example,

```
int i;
```

What is the initial value of i?

You guessed it! **BITS!**
(They may be 0 bits, but they may not be.)

Variables Can be Local to Functions or Global

For now, **variables can be declared**

- **inside a function** (a subroutine)
 - usable only in the function
 - exist only while the function executes, **or**
- **outside of all functions**
 - usable in any function
 - exist while the program executes.

**We discuss scope and storage class
in more detail later.**